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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,857	10/20/2005	Das Ajee Kamath	148523.00000	6132

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EXAMINER	
TRIEU, THAI BA	
ART UNIT	**PAPER NUMBER**
3748	

MAIL DATE	DELIVERY MODE
08/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/553,857	KAMATH, DAS AJEE	
	Examiner	Art Unit	
	Thai-Ba Trieu	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 October 2005*.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01/04/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The Preliminary Amendment filed on October 20, 2005 is acknowledged.

Claims 1-12 were cancelled; and claims 13-19 were newly added.

This application is in condition for allowance except for the following formal matters:

1. IN THE DRAWINGS:

The drawings fail to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

- "1", "2", "4", "5" (See Paragraph [0030]; and
- "6", "7", "8", "9" (See Paragraph [0055].

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. IN THE SPECIFICATION:

a. In Summary of the Invention (Paragraph [003]:

- the word ***"said"*** should be deleted (for correcting minor informalities in the Specification).

b. In Brief Description of the Drawings:

- A brief description of Figures 38-51 should be inserted after Paragraph [0028].

c. In detailed Description of the Invention:

- In Paragraph [0034], ***"fiv. No. 4"*** should be replaced by – **Fig. No. 4**-- (for correcting typo error).

3. IN THE ABTRACT:

Since the Abstract is too long, applicant is required to submit a substitute Abstract to meet the requirement set forth below:

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to ***a single paragraph on a separate sheet within the range of 50 to 150 words***. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. IN THE CLAIMS:

Applicants is suggested to revise the claims by following for correcting grammatical errors, for maintaining consistency; and for addressing redundancy, double recitation in claims, and the rejections of 112, second paragraph and sixth paragraph :

-- 3. A rotary apparatus adapted to perform as, compressor, pump, motor, metering device or an internal combustion engine, comprising [[of]]:

two identical vanes,

two hollow sleeves,

a hollow liner,

timing devices including cams and associated linkages,

a couplings/clutch,

a shaft, and

a braking/holding arrangement;

wherein said cams define a variable initial angular displacement between vanes at the start of a sequence, commencing with one **of said vanes being and the other being rotating** [[vane stationary and other rotating]] such that on reaching an angle of 360 degrees minus twice the initial angular

displacement **of** both vanes rotate together through the [[said]] initial angular displacement and the two vanes reach [[the said]] **an** initial position with the individual vanes position interchanged, subsequently the previously held vane rotates and previously rotating vane is held stationary until the rotating vane reaches an angle of 360 degrees minus twice the initial angular displacement from the stationary vane and so on continually;

wherein said vanes are fitted on to the **hollow** sleeves, **said** one vane on each sleeve, such that the vanes are radial to sleeve's surface and at one of the ends of each sleeve;

wherein said vanes are so fitted that some portion of a vane surface protrudes out of the sleeve's end;

wherein said sleeves **are** placed such that [[their]] **the** ends **of said sleeves** fitted with vanes are placed adjacent, with the vanes angularly displaced by a minimum angle which is controlled, varied by said cams;

wherein said surfaces where the vanes are attached on the **hollow** sleeves [[is]] **are** such that [[it allows]] **a** rotation of the adjacent vanes and [[sleeve]] **said hollow sleeves** fitting about the said coaxial axis of **said hollow** sleeves;

wherein said vanes are placed inside a liner;

wherein said liner along with the sleeve [[surface]] **surfaces** forms an enclosure;

wherein said [[liner's]] **liner having an inner surface** is contoured along the path traced by [[vane]] **an** edge **of said vanes** while rotating about [[the]] said axis, thus allowing rotation of the vanes about [[the]] said axis;

wherein said vanes divide [[the]] said enclosure formed inside the liner into two chambers, characterized by the fact that said two **hollow** sleeves are coupled and uncoupled with a shaft by means of **said** coupling/clutching [[arrangement]] actuated by cams placed on and, or driven by the **hollow** sleeves,

wherein said braking [[arrangements]] **arrangement** actuated by said cams or holding [[arrangements maintain]] **arrangement maintains said** vanes stationary at a controlled but variable position alternately;

wherein said cams define the angle by which the vanes are held stationary, separated, rotated simultaneously or independently; and

wherein said [[timing devices]] **cams** allow **said** both vanes to rotate simultaneously through a predefined variable

angle resulting in [[the]] said **rotary** apparatus functioning with a variable compression ratio. --

-- 14. [[A]] **The** rotary apparatus as claimed in claim 13 wherein [[the]] said cams have a profile such that [[the]] **an** angle that the beginning and end of profile makes to the center line of the [[cam]] **cams**, [[defines the, and is equal to the ,]] **defining a** minimum angle of separation between the vanes during operation **and being equal to said angle that the beginning and end of profile;** [[and the]]

wherein said minimum angle of separation defines the compression ratio, and

wherein the said angle of profile to the center line is gradually varied along the central axis, allowing alteration of the said minimum angle of separation between the vanes during operation by moving cam followers along the central axis through which [[the]] said angle of profile is varied, thus resulting in variation of **said** compression ratio. --

-- 15. [[A]] **The** rotary apparatus as claimed in claim 13, wherein the **hollow** sleeve end surfaces adjacent to each other are provided with sealing elements forming a continuous sealing line around said end surfaces blocking a leakage flow. --

-- 16. [[A]] **The** rotary apparatus as claimed in claim 13 wherein said vanes are provided with sealing elements **for** blocking a leakage fluid flow across the vane [[edges]] **edge**. --

-- 17. [[A]] **The** rotary apparatus as claimed in claim 13 wherein sealing arrangements placed at the liner and sleeve interface [[,]] **for** blocking a leakage flow. --

-- 18. [[A]] **The** rotary apparatus as claimed in claim 13 wherein [[communicating devices or flow regulating devices such as ports or and valves are provided with, such that the said enclosure is communicated or sealed to spaces outside]] **the enclosure are provided with intake/exhaust ports or intake/exhaust valves for controlling the flow or sealing spaces outside of the enclosure**.--

-- 19. [[A]] **The** rotary apparatus as claimed in claim 18 wherein [[the communicating device or flow regulating devices such as]] **a location/position, an operation and a timing control of said intake/exhaust ports or intake/exhaust** valves [[, is so placed, operated and, or timed, such that]] make/have/define the apparatus [[be used]] performing/operating as a compressor, motor, pump or a metering device. --

-- 20. (New) A rotary apparatus as claimed in claim 19 in which [[communicating devices and/or with means of energy addition and removal are provided, so placed, operated and, or timed, such that the apparatus be used as a prime mover like]] **a location/position, an operation and a timing control of said intake/exhaust ports or intake/exhaust valves, and fuel injector make/have/define the apparatus performing/operating as a prime mover or** an internal combustion engine with a variable compression ratio. --

Conclusion

The IDS (PTO-1449) filed on January 04, 2006 has been considered. An initialized copy is attached hereto.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Arov (Pub. Number US 2007/0062482 A1) discloses an orbital engine/pump.
- Bastian (Pub. Number US 2006/0124102 A1) discloses a rotary engine system.
- Yűksel (US Patent Number 7,156,068 B2) discloses a rotary combustion engine.
- Bahniuk (US Patent Number 6.991.441 B2) discloses an expansive chamber device having rotating piston braking and rotating piston synchronizing systems.
- Udy (US Patent Number 6,962,137 B2) discloses a two-cycle rotary engines.
- Udy (US Patent Number 6,948,473 B2) discloses a four-cycle rotary engines.

- Stauydenrausch (US Patent Number 6,626,643 B2) discloses a twin vane pump apparatus.

- Sakita (US Patent Number 6,457,452 B1) discloses a mechanism for interconnecting first and second shafts of variable speed rotation to a third shaft.

- Raikamo (US Patent Number 6,158,987) discloses a power unit for use as a pressure fluid operated motor and/or a pressure fluid pump.

- Volftsun (US Patent Number 6,113,370) discloses a rotary van machine.

- Schadeck (US Patent Number 5,527,165) discloses a pressurized vapor driven rotary engine.

- Kull et al. (US Patent Number 5,501,182) disclose a peristaltic vane device for engines and pumps.

- Stauffer (US Patent Number 5,429,085) discloses timing mechanism for rotary engines.

- Stauffer (US Patent Number 4,744,736) discloses a compound rotary internal combustion engine.

- Somraty (US Patent Number 4,359,980) discloses a rotating piston engine.

- Turnbull (US Patent Number 4,086,879) discloses a rotary engine with revolving and oscillating pistons.

- Eda (US Patent Number 3,824,963) discloses a rotary type internal combustion engine.

- Bauer (US Patent Number 3,565,049) discloses an internal combustion engine.

- Drury (US Patent Number 3,592,571) discloses a rotary volumetric machine.

- Turnbull (US Patent Number 3,505,981) discloses a rotary engine.

- Gardner (US Patent Number 2,147,290) discloses an engine.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 25 USPQ 74, 453 O.G. 213, (Comm'r Pat. 1935).

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai-Ba Trieu whose telephone number is (571) 272-4867. The examiner can normally be reached on Monday - Thursday (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TTB
August 18, 2007

Thai-Ba Trieu
Primary Examiner
Art Unit 3748